

NOTES ON THE DEVELOPMENT AND STRUCTURE OF THE  
"BASKET FUNGUS",

*Clathrus gracilis* (Berk.) Schlechtendal.

by

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The following observations were made on living material at Ararat, Victoria, during the writer's residence there in June 1918, and they may still be of some interest after almost half a century.

In the early stages the periderm of *Clathrus* is filled by a thick jelly-like mass, rather firm in texture. This is intersected and divided up into compartments by lines of hyphal threads forming a series of membranous division-walls. The central mass becomes cellular in structure and brownish, still permeated with the jelly. The hyphal divisions give rise to the framework of the sporophore which in the early stages and before expansion is attached along the division-lines to the hyphal threads. At the base of the sporophore the tubes are narrower and pass into the jelly-mass communicating with the hyphal threads of the periderm which here pass into the jelly-mass to a greater extent than in other parts. The framework of the sporophore, which in early stages is surrounded with a thin membrane much resembling the mesentery surrounding the intestines, becomes more loosely attached to the division-lines as the plant matures; and the jelly at the upper portion of the volva disappears, leaving only the thin periderm which soon ruptures under the pressure exerted by the now free sporophore. The jelly-mass has lost its firm consistency and become more liquid, especially in the centre of the sporophore where it serves as a medium to hold the spores to the receptacle. The sporophore is tubular in section through its arms and 1, 2, or 3 tubes may be seen in the section; these are filled with the jelly in the early stages but are empty later on. The hyphal membrane forming the partitions between the sections of jelly, when examined microscopically, exhibits a structure composed of numerous inter-lacing, branching and anastomosing threads often articulated. The clear colorless jelly, under the microscope, displays also some branching threads; these end in clubs or irregular masses which often give rise to much curved filaments. The clubs are often applied to one another at their tips. Clamp connections are often present. In the membrane forming the divisions between the compartments are numerous small crystals which do not extinguish when viewed with crossed nicols. The jelly has a peculiar and penetrating smell—somewhat resembling that of formalin or iodoform.

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PLATE XIV.



EXPLANATION OF PLATE XIV.

*Clathrus gracilis* (Berk.) Schlechtendal

- 1 Mature plant, before rupture of the volva.
- 2 Volva commencing to split.
- 3 Sporophore expanding, portion of volva broken away.
- 4 Sporophore almost free from volva.
- 5 Remains of volva.
- 6 Early stage of sporophore showing attachment to base.
- 7 Section at early stage showing cut ends of sporophore arms.
- 8 Early stage with sporophore removed showing jelly segments.
- 9 Later stage, sporophore removed, jelly thinning at the top.
- 10 a Portion of volva showing segments of jelly.  
b Single segment with its membranous hyphal walls.  
c Branching hypha from membranous division.  
d Club shaped hyphae from jelly, applied at their tips.  
e Hypha with thickened end.  
f Hyphae ending in rough masses.  
g Hypha giving rise to a curved filament.  
h Clamp connections.